Chapter 1

p.27

In the last line of the paragraph after Equation (1.18b), the last phrase should be: one ohm^{-1} is defined as one Siemen (S).

Chapter 2

p.55

In the table at the bottom of the page, the values of log γ, γ, and Activity for Ca^{2+} should be –0.089, 0.814, and 8.14×10^{-5}, respectively. The corrected table appears below:

Ion	Size Parameter *a*	log γ	γ	Activity
Na^+	4	–0.0230	0.948	1.90×10^{-3}
Cl^-	3	–0.0230	0.948	1.14×10^{-3}
Ca^{2+}	6	–0.089	0.814	8.14×10^{-5}
HCO_3^-	4	–0.0230	0.948	9.48×10^{-4}

Chapter 3

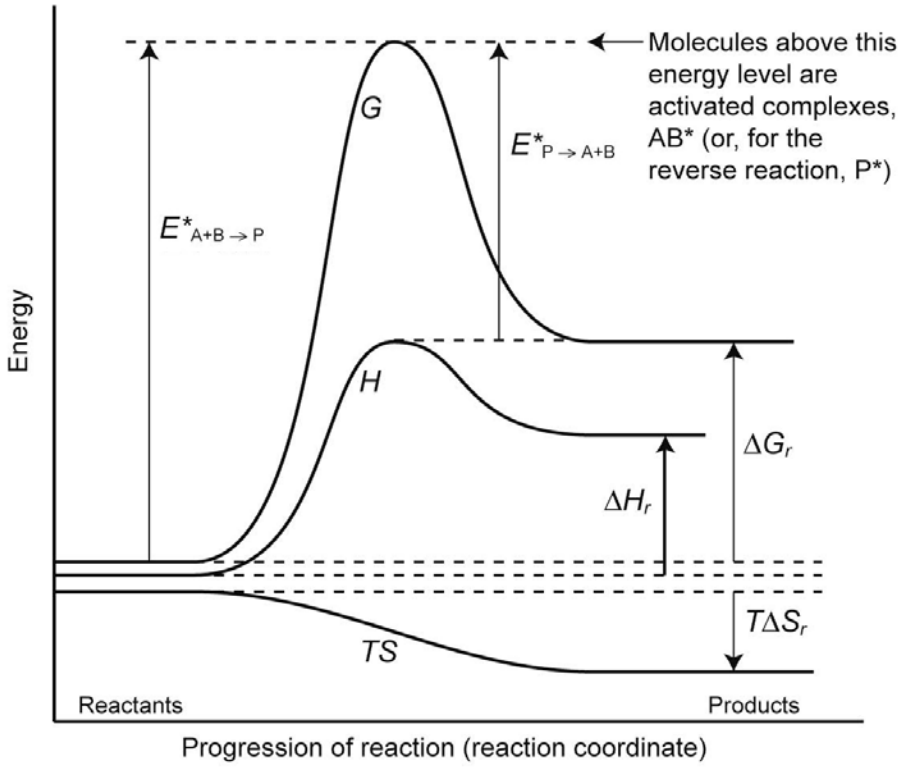
p.81

In the second line of the paragraph above Equation (3.1), delete the word "negative." Sentence should read:

Figure 3.1 includes three curves — one for the enthalpy (*H*) of the molecules, one for the product of the system temperature and the **entropy (*S*)** of the molecules, and one for their **Gibbs energy (*G*).**

p.82

In Figure 3.1, the two E^* terms are reversed. The term on the far left should be $E^*_{A+B \rightarrow P}$ and the term on the right should be $E^*_{P \rightarrow A+E}$. The corrected figure appears below:



Problems p.126

In Problem 12, the rate constant in line 8 has incorrect units. The expression should be:

$$k = 10^{-3.2}\ atm^{-1} \cdot s^{-1}, \quad \text{not} \quad k = 10^{-3.2}\ atm^{-1} \cdot d^{-1}$$

p.128

The revised version of Problem 19 is available on the book's webpage at waveland.com.

Chapter 7	
p.366	The equations at the top of p.366 are incorrect. Replace that material with the following content: $[\mathrm{HAc}]_{\mathrm{added}} = [\mathbf{Acetate-1}]_{\mathrm{eq}} - [\mathbf{Acetate-1}]_{\mathrm{in,init}} = 1.1934 \times 10^{-3} - 1.0 \times 10^{-4}$ $= 1.0934 \times 10^{-3}$ $[\mathrm{HAc}]_{\mathrm{added}} = [\mathbf{H}^+]_{\mathrm{eq}} - [\mathbf{H}^+]_{\mathrm{in,init}} = 1.0934 \times 10^{-3} - 0 = 1.0934 \times 10^{-3}$
p.367	In Figure 7.6 the table values and the caption are incorrect, as well as the equations and numerical values in the paragraph below the figure. Corrected material appears below: (a)

No. of iterations 1

pH 4.000 — Sum of cations (eq/kg) 1.0117E-04

Ionic strength 1.00e-04 — Sum of anions (eq/kg) 1.5041E-05

Charge difference (%) 74.114346

Concentrations and activities of aqueous inorganic species (mol / l) Print to Excel

	Concentration	Activity	Log activity
Acetate-1	1.5041E-05	1.4867E-05	-4.828
H+1	1.0117E-04	1.0000E-04	-4.000
H-Acetate (aq)	8.4959E-05	8.4961E-05	-4.071
OH-	1.0187E-10	1.0069E-10	-9.997

(b)

Distribution of components between dissolved, sorbed and precipitated phases

(Concentrations in molal)

Component	Total dissolved	% dissolved	Total sorbed	% sorbed	Total precipitated	% precipitated
Acetate-1	1.0000E-04	100.000	0	0.000	0	0.000
H+1	1.8613E-04	100.000	0	0.000	0	0.000

Figure 7.6. Output screens for a system containing 10^{-4} *M* HAc which is then adjusted to pH 4.0 by addition of strong acid. (a) Overall summary of solution composition; (b) Equilibrated mass distribution.

Once again, we can compute the amount of reagent added by writing the mass balance, this time on $\mathbf{H}^+$:

$$[\mathrm{HCl}]_{\mathrm{added}} = [\mathbf{H}^+]_{\mathrm{eq}} - [\mathbf{H}^+]_{\mathrm{in,init}} = 1.861 \times 10^{-4} - 1.00 \times 10^{-4} = 8.61 \times 10^{-5}$$

Of the 1.861×10^{-4} *M TOT***H** in the equilibrium solution, 1.012×10^{-4} *M* is present as free H^+ (i.e., H_3O^+), generating an H^+ activity of $10^{-4.0}$. The rest of the *TOT***H** (8.496×10^{-5} *M*) is bound with acetate in HAc molecules. As expected, since the pH of 4.0 is lower than pK_a for HAc (4.74), the protonated species is present at a larger activity (8.496×10^{-5}) than deprotonated Ac^- (1.487×10^{-5}).

Chapter 8	
p.425	In Table 8.6, row (h), the value in the ALK column should be 3.01, not 2.51.
p. 427	In Equation (8.21b), insert a coefficient "2" before α_2.
p.432	In the equation at the bottom of the page, the signs preceding the (H^+) and (OH^-) terms are reversed. The equation should read: $$TOTH = 2H_2CO) + (HCO_3^-) - (OH^-) + (H^+)$$
Chapter 9	
p.480	In the equation shown for part (b), the denominator $c_{L,i}$ in the first fraction should be $c_{L,i}'$ and the term in the denominator $(c_{L,i}')$ in the second fraction should be $(c_{L,i})$.
Chapter 10	
p. 542	On the first page of Table 10.3, some of the entries in the top row showing stability constants for complexes of Ag^+ with EDTA, CN^-, and HS^- are in the wrong columns. The correct entries are as follows: <table><tr><th>EDTA</th><th></th><th>CN^-</th><th></th><th>HS^-</th><th></th></tr><tr><td>AgL</td><td>8.05</td><td>$AgH_{-1}L$</td><td>–0.78</td><td>AgL</td><td>13.82</td></tr><tr><td>AgHL</td><td>14.74</td><td>AgL_2</td><td>20.48</td><td>AgL_2</td><td>17.91</td></tr><tr><td></td><td></td><td>AgL_3</td><td>21.7</td><td>$AgH_{-1}L$</td><td>5.30</td></tr><tr><td></td><td></td><td></td><td></td><td>$AgH_{-1}L_2$</td><td>8.59</td></tr></table> The same change should be made to the copy of this Table in the Appendix, p. 860. See Errata p. 5 for a corrected copy.
p. 544	On the third page of Table 10.3, in the fifth column, showing stability constants for complexes of Hg^{2+} with NH_3, the entry labeled HgL_3 should be moved down one line and changed to HgL_4, and its associated value should be changed from 10.04 to 19.28. The same change should be made to the copy of this Table in the Appendix, p.862. See Errata p. 6 for a corrected copy.
Chapter 11	
p.652 Problems	In Problem 22, line 5, change $Zn(OH)_2(s)$ to $Zn(OH)_2(am)$.
Chapter 12	
p.682	In the expression for $\{Cu^+\}/\{Cu^{2+}\}$ near the bottom of the page, $10^{2.72}$ should be $10^{2.69}$, and $10^{-25.92}$ should be $10^{-25.95}$. Two lines lower, in the expression for $\{Co^{2+}\}/\{Co^{3+}\}$, $10^{33.1}$ should be $10^{32.4}$, and $10^{2.46}$ should be $10^{3.76}$.
p.686	The following sentence should be added to the answer to part (a) at the bottom of the page: The half-reaction for oxidation of NH_3 can be obtained by adding the "K_a" reaction for NH_4^+/NH_3 to the half-reaction shown in Table 12.3 for the NO_3^-/NH_4^+ couple.

Chapter 12 (continued)	
p.687	In part (ii) Cl_2/CN^- : In the first reaction shown, the product should be Cl^-, not $½Cl^-$ $½Cl_2\ (aq) + e^- \leftrightarrow Cl^-$ In the third reaction shown, insert a + sign between Cl^- and $½\ OCN^-$ on the product side $½Cl_2\ (g) + ½CN^- + OH^- \leftrightarrow Cl^- + ½OCN^- + ½H_2O$ In the last sentence before equation (12.22), omit the word "log" before variable *K*. The sentence should read By definition, $e°$ equals *K* for the oxidation reaction, so we can write:
p.698–99	In line 4 of Example 12.10, $10^{45.61}$ should be $10^{35.4}$, $10^{52.63}$ should be $10^{43.6}$, and $Fe(CN)_6^{3-}$ should be $Fe(CN)_6^{4-}$. (Note that the species $Fe(CN)_6^{3-}$ on the subsequent line is correct.) Correspondingly, the log *K* values for the reactions at the top of p.699 should be 35.4 for the second reaction, −43.6 for the third reaction, and 4.83 (instead of 6.01) for the overall reaction. Also, in the second reaction, the reactant Fe^{3+} should be Fe^{2+}. And, in the final paragraph of the solution, $10^{-6.01}$ should be $10^{-4.83}$, and >6.01 should be >4.83.
p.759 Problems	In Problem 9, line 1, change $S(s)$ to SO_3^{2-}.

Table 10.3, p. 542 and Appendix A.5, p 860

Table 10.3 Stability constants for some metal–ligand complexes. Values correspond to $\log \beta$ for formation of the complex from the free metal, the ligand, H^+, and H_2O.

	CO_3^{2-}	SO_4^{2-}	Cl^-	F^-	NH_3	PO_4^{3-}	EDTA	CN^-	HS^-
Ag^+		AgL 1.30	AgL 3.31	AgL 0.40	AgL 3.31		AgL 8.05	$AgH_{-1}L$ −0.78	AgL 13.82
		AgL_2 5.25		AgL_2	7.21		AgHL 14.74	AgL_2 20.48	AgL_2 17.91
		AgL_3 5.20						AgL_3 21.70	$AgH_{-1}L$ 5.30
									$AgH_{-1}L_2$ 8.59
Al^{3+}		AlL 3.84	AlL −0.39	AlL 7.01		AlHL 20.01	AlL 18.96		
		AlL_2 5.58		AlL_2 12.63		Al_2L 18.98	AlHL 21.78		
				AlL_3 16.70					
				AlL_4 19.40					
Ca^{2+}	CaL 3.22	CaL 2.36	CaL 0.40	CaL 1.14	CaL 0.20	CaL 6.46	CaL 12.44		
	CaHL 11.43				CaL_2 −0.11	CaHL 15.04	CaHL 15.97		
						CaH_2L 20.92			
Cd^{2+}	CdL 4.37	CdL 2.37	CdL 1.98	CdL 1.20	CdL 2.55	CdHL 16.08	CdL 18.10	CdL 6.01	CdL 8.01
	CdL_2 7.23	CdL_2 3.50	CdL_2 2.60		CdL_2 4.55		CdHL 21.43	CdL_2 11.12	CdL_2 15.31
	CdHL 11.83				CdL_3 5.89		CdH_2L 23.23	CdL_3 15.65	CdL_3 17.11
					CdL_4 6.80			CdL_4 17.92	CdL_4 19.31
Co^{2+}	CoL 4.28	CoL 2.30	CoL −0.35	CoL 1.40	CoL 2.03	CoHL 15.43	CoL 18.16		CoL 5.20
	CoHL 12.22				CoL_2 3.49		CoHL 21.59		

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Table 10.3, continued, p. 544 and Appendix A.5, p. 862

Table 10.3 – continued from previous page

	CO_3^{2-}	SO_4^{2-}	Cl^-	F^-	NH_3	PO_4^{3-}	EDTA	CN^-	HS^-
Hg^{2+}	HgL 12.13	HgL 2.47	HgL 7.33	HgL 1.60			HgL 23.24	HgL 17.00	
	HgL_2 15.58	HgL_2 3.48	HgL_2 14.03		HgL_2 17.79		HgHL 26.87	HgL_2 32.75	HgL_2 38.42
	HgHL 16.35		HgL_3 15.03				HgH_2L 29.17	HgL_3 36.31	$HgH_{-1}L_2$ 31.93
			HgL_4 15.63		HgL_4 19.28			HgL_4 38.97	$HgH_{-2}L_2$ 23.22
Ni^{2+}	NiL 4.57	NiL 2.30	NiL −0.43	NiL 1.30	NiL 2.72	NiHL 15.33	NiL 20.11	NiL_4 30.20	NiL 5.49
	NiHL 12.42	NiL_2 0.82	NiL_2 −1.89		NiL_2 4.87	NiH_2L 20.50	NiHL 23.64	$NiHL_4$ 36.03	
					NiL_3 6.53		NiH_2L 24.74	NiH_2L_4 40.74	
					NiL_4 7.65			NiH_3L_4 43.34	
					NiL_5 8.31				
					NiL_6 8.27				
Pb^{2+}	PbL 6.53	PbL 2.69	PbL 1.56	PbL 2.15		PbHL 15.48	PbL 19.71		
	PbL_2 9.94	PbL_2 3.47	PbL_2 1.90	PbL_2 3.24		PbH_2L 21.07	PbHL 22.54		PbL_2 15.27
	PbHL 13.23		PbL_3 1.80				PbH_2L 24.44		PbL_3 16.57
			PbL_4 1.38				PbH_3L 25.64		
Zn^{2+}	ZnL 4.76	ZnL 2.34	ZnL 0.46	ZnL 1.30	ZnL 2.21	ZnHL 15.69	ZnL 18.00		$ZnH_{-2}L_2$ −1.43
	ZnL_2 7.30	ZnL_2 3.28	ZnL_2 0.45		ZnL_2 4.49		ZnHL 21.43	ZnL_2 11.07	
	ZnHL 11.83		ZnL_3 0.50		ZnL_3 6.85		ZnH_2L_2 22.83	ZnL_3 16.05	
			ZnL_4 0.20		ZnL_4 8.87			ZnL_4 19.62	

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